

Claims

- [c1] What is claimed is:
1. A method for accessing data in a computer, the computer comprising a non-volatile memory and a volatile memory, the non-volatile memory comprising a first portion and a second portion, the first portion storing the basic input/output system (BIOS) of the computer, the method comprising:
 - (a) allocating data in the second portion of the non-volatile memory to the volatile memory when the computer starts up;
 - (b) updating corresponding data stored in the volatile memory when a user wants to update data stored in the second portion of the non-volatile memory; and
 - (c) writing back the data in the volatile memory to the second portion of the non-volatile memory when the computer is ready to shut down.
 - [c2] 2. The method of claim 1, wherein when the user wants to update the data stored in the second portion of the non-volatile memory, a corresponding update operation is executed in the volatile memory without modifying the data in the second portion of the non-volatile memory.
 - [c3] 3. The method of claim 1, wherein the second portion of the non-volatile memory comprises a plurality of blocks as basic storage units for storing data.
 - [c4] 4. The method of claim 3, wherein the volatile memory comprises a plurality of sectors corresponding to the blocks of the second portion of the non-volatile memory, and the data stored in the blocks of the second portion of the non-volatile memory are allocated to the corresponding sectors of the volatile memory when the computer starts up.
 - [c5] 5. The method of claim 4, further comprising establishing a mapping table in the volatile memory for mapping relation between the blocks of the second portion of the non-volatile memory and the sectors of the volatile memory.
 - [c6] 6. The method of claim 5, wherein when the user wants to read data stored in one of the blocks of the second portion of the non-volatile memory, the

computer reads data stored in the corresponding sector of the volatile memory.

- [c7] 7. The method of claim 5, wherein the computer updates data stored in the portion of the non-volatile memory according to the mapping table when the computer is ready to shut down.
- [c8] 8. The method of claim 5, wherein step (c) further comprises:
updating the mapping table for changing the mapping relation between the sectors and the blocks; and
restoring the data in the sectors of the volatile memory to the second portion of the non-volatile memory according to the updated mapping table.
- [c9] 9. The method of claim 5, further comprising establishing a second mapping table in the non-volatile memory when the computer is ready to shut down.
- [c10] 10. The method of claim 5, wherein the mapping table is established from a reference mapping table stored in the non-volatile memory when the computer starts up.
- [c11] 11. The method of claim 5, wherein the computer updates the data in the blocks corresponding to the sectors with updated data according to the mapping table when the computer is ready to shut down.
- [c12] 12. The method of claim 1, wherein the computer is an information appliance (IA).
- [c13] 13. The method of claim 1, wherein the non-volatile memory is a flash memory, and the volatile memory is a random access memory (RAM).
- [c14] 14. A computer comprising:
a non-volatile memory comprising a first portion for storing the basic input/output system (BIOS) of the computer and a second portion;
a volatile memory for storing data temporarily during operation of the computer; and
a processor;
wherein the processor allocates data stored in the second portion of the non-volatile memory to the volatile memory when a user starts up the computer; the

processor updates data stored in the volatile memory when the user wants to update corresponding data stored in the second portion of the non-volatile memory; and the processor writes back the updated data in the volatile memory to the non-volatile memory when the user is ready to shut down the computer.

[c15] 15. The computer of claim 14, wherein when the user wants to update the data stored in the second portion of the non-volatile memory, a corresponding update operation is executed in the volatile memory without modifying the data in the second portion of the non-volatile memory.

[c16] 16. The computer of claim 14, wherein the second portion of the non-volatile memory comprises a plurality of blocks as storage units for storing data.

[c17] 17. The computer of claim 16, wherein the volatile memory comprises a plurality of sectors corresponding to the blocks of the second portion of the non-volatile memory, and the data stored in the blocks of the second portion of the non-volatile memory are allocated to the corresponding sectors of the volatile memory when the user starts up the computer.

[c18] 18. The computer of claim 17, wherein the processor establishes a mapping table in the volatile memory for recording a mapping relation between the blocks of the second portion of the non-volatile memory and the sectors of the volatile memory.

[c19] 19. The computer of claim 18, wherein when the user wants to read data stored in one of the blocks of the second portion of the non-volatile memory, the computer reads data stored in the corresponding sector of the volatile memory.

[c20] 20. The computer of claim 18, wherein the computer updates data stored in the second portion of the non-volatile memory according to the mapping table when the user is ready to shut down the computer.

[c21] 21. The computer of claim 18, wherein when the user is ready to shut down the computer, a process executed by the processor comprises:
writing back the mapping table for changing the mapping relation between the sectors and the blocks; and

restoring data stored in the sectors of the volatile memory to the second portion of the non-volatile memory according to the updated mapping table.

[c22] 22. The computer of claim 18, wherein the processor establishes a second mapping table in the non-volatile memory when the user is ready to shut down the computer.

[c23] 23. The computer of claim 18, wherein the mapping table is established from a reference mapping table stored in the non-volatile memory when the user starts up the computer.

[c24] 24. The computer of claim 18, wherein the computer updates data of the blocks corresponding to the sectors with updated data according to the mapping table when the user is ready to shut down the computer.

[c25] 25. The computer of claim 14, wherein the computer is an information appliance (IA).

[c26] 26. The computer of claim 14, wherein the non-volatile memory is a flash memory, and the volatile memory is a random access memory (RAM).

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